Dependences on Degree of Polymerization [psl9]

Zero shear viscosity

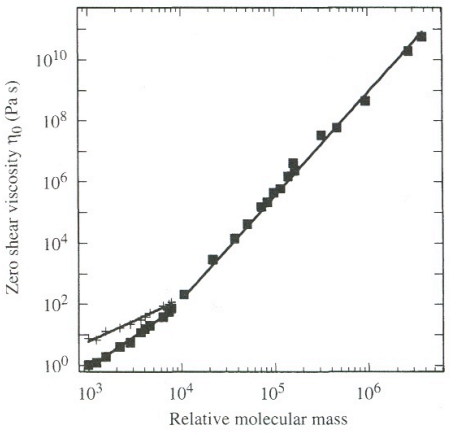

Fig. 5.8 Zero shear viscosity of polybutadiene as a function of the relative molecular mass. At high relative molecular mass, the viscosity fits a power law $\eta_0 \sim N^{3.4}$. At lower relative molecular mass, if the data is corrected for the relative molecular mass dependence of the glass transition temperature (crosses) we find $\eta_0 \sim N$. Data from Colby *et al.* (1987).

Self-diffusion coefficient

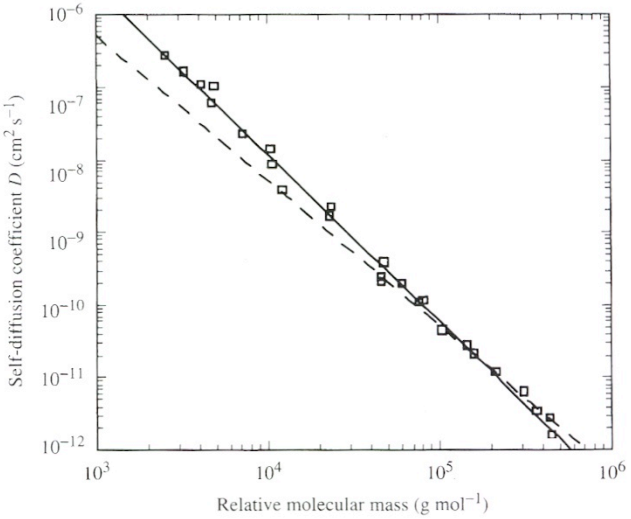

Fig. 5.10 Self-diffusion coefficients of hydrogenated polybutadiene as a function of relative molecular mass. The dashed line is the prediction of the simple reptation theory that $D_{\text{self}} \sim N^{-2}$, while the solid line is the best-fit power law, $D_{\text{self}} \sim N^{-2.30}$. Data from a number of authors, cited in Lodge (1999).

[from Jones 2002]